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[ABSTRACT]

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PATENT SPECIFICATION ( 11) 1 507 255 ( 21) Application No 20216/76 ( 22) Filed 17 May 1976 ( 19) ( 31) Convention Application No 7 516 738 ( 32) Filed 23 May 1975 in ( 33) France (FR) ( 44) Complete Specification published 12 April 1978 ( 51) INT CL 2 F 16 K 3/22 25/04 ( 52) Index at acceptance F 2 V D 6 X E 1 N 3 ( 54) IMPROVEMENTS IN OR RELATING TO VALVES ( 71) I, JEAN MILLET, a French Citizen of 35 rue du Sergent Michel Berthet, 69009 Lyon, Rhone, France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be par-ticularly described in and by the following

statement: -

The present invention relates to improve-ments applied to valves intended to be mounted in installations through which turbid liquids pass and it relates more par-ticularly to valves used in controlling equip-ment for heating motor vehicles.

The liquid employed for the heating of vehicles comes from the general cooling cir-cuit, which frequently contains hard particles in suspension, such as grains of sand It will be understood that during the operation of the valve member, certain of these par-ticles become wedged between said valve member and the wall of the valve body, causing deep scratches in either of the two walls in contact After a relatively low number of operations, the valve member is no longer tight and has to be replaced.

The object of the present invention is to remedy this drawback and to facilitate the production of a valve which is able to oper-ate correctly despite particles in suspension in the liquid passing through the latter.

A valve according to the invention com-prises a body of circular cross-section and a sectorally-shaped valve member, the arced surface of the valve member being in contact with the inner surface of the body and one of these contacting surfaces being provided with cavities in which suspended particles in the liquid can lodge and the other contacting surface being provided with at least one groove into which the lodged particles can be transferred for discharge from the valve.

The accompanying drawing shows one em-bodiment of the invention by way of

ex-ample.

Fig 1 is a cross sectional view of the body of a valve according to the invention.

Fig 2 is a perspective view of the corresponding valve member.

Fig 3 is a horizontal sectional view to an enlarged scale of the outer wall of this valve member.

The valve shown is of the type forming the subject of the French Patent published under No 2,115,736 in the name of 55 MILLET filed on November 25th 1970. It should be noted that such a valve comprises a cylindrical body 1 (Fig 1) provided with two lateral securing lugs 1a and two outlet pipes 1b and 1c, the admission of liquid 60 taking place through an upper pipe shown at 2 and provided in the cover (not shown) which closes the body 1. Force-fitted in the latter is a member formed by a semi-rigid part 3 (Fig 2) in the shape of a sector, 65 whose radius in the free state is slightly greater than that of the inner wall of said body 1. This member 3 is integral with an axial boss 3a inside which is engaged a control shaft (not shown) and which is connected to two radial partition wall 3b connected by the wall 3c in the shape of an arc of a circle.

The inner wall 1d of the body 1 comprises two grooves 1e and 1f provided longitudinally and which define therebetween an angle greater than that of the member 3. For greater simplicity, the groove 1f is provided between the pipes 1b and 1c, whereas the groove 1e is located at approximately  $90^\circ \pm 80$  from the groove 1f. Since the angle defined by the sectorally-shaped member 3 is less than this value, said sector passes completely in front of each of the said grooves during each complete angular operation. It will be noted that these grooves have a greater length than the height of the member 3.

The periphery of the member 3 is provided with cavities 3d in a staggered arrangement such that the cavities 3d of the member 3 sweep completely over the entire active surface of the inner wall 1d of the body 1, thus constituting the surface producing the seal. Fig 3 shows a preferred embodiment of the cavities 3d which assume the shape of an impression having a circular outline whose axis is directed parallel to the axis of symmetry of the member.

It is advantageous to use materials of J 00 0 s & 1,507,255 different hardness to produce the member 3 and body 1. Thus, a softer material is preferably chosen for the body than for that intended for producing the member.

During operation, if the grain of sand should infiltrate between the member and inner wall of the body, it tends to lodge in the latter and to constitute a tool which causes scratching on the member. In the present case, this scratch simply joins one cavity 3d to another, the edge of the latter causing detachment of the grain of sand which thus comes to rest in the cavity in question. It will be easily understood that the scratch which joins two cavities is in no way detrimental to the tightness of the valve.

In addition, when, during the operation of the member 3, a cavity containing one or more particles comes into facing relationship with one or other of the grooves 1e or 1f, these particles are transferred to the groove in question and discharged in the liquid.

A material harder than that of the member 3 may naturally be chosen for the body 1 and the cavities may be located on the inner wall of the body

and the grooves on the periphery of the sector But this arrangement is more difficult to put into operation.

WHAT I CLAIM IS: -

1 A valve for use with turbid liquids comprising a body of circular cross-section and a sectorally-shaped valve member, the arced surface of the valve member being in contact with the inner surface of the body and one of these contacting surfaces being provided with cavities in which suspended particles in the liquid can lodge and the other contacting surface being provided with at least one groove into which the lodged particles can be transferred for discharge from the valve.

2 A valve as claimed in claim 1 in which the cavities are arranged in a staggered manner.

3 A valve as claimed in claim 1 or 2 in which the arced surface of the valve member is provided with the cavities and the inner surface of the body is provided with the groove or grooves.

4 A valve as claimed in claim 3 in which there are two circumferentially spaced grooves, the angle therebetween being greater than that defined by the sectoral valve member.

A valve as claimed in any preceding claim in which the two contacting surfaces have a different hardness from each other, the surface provided with the cavities being the harder.

6 A valve for use with turbid liquids substantially as hereinbefore described with reference to the accompanying drawing.

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